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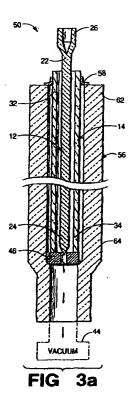
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# (54) Method for making multiple overclad optical fiber preforms

(57)Embodiments of the invention include a method for making a multiple overclad optical fiber preform. The method includes positioning a first overclad tube (14) around a preform core rod (12), positioning at least one second overclad tube (56) around the first overclad tube, and collectively heating the preform core and the overclad tubes under pressure to collapse the overclad tubes onto the preform core rod thus producing a multiple overclad optical fiber preform. Heating occurs either in a draw tower furnace, for example, as part of an Overclad During Draw (ODD) process, or, alternatively, by a separate heating source prior to introducing the preform into the draw tower, for example, as in a conventional Rod-In-Tube (RIT) process. The method also includes drawing optical fiber as portions of the preform are being heated in the draw tower furnace or, alternatively, heated by a heating source separate from the draw tower and then moved to the draw tower.



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## **EUROPEAN SEARCH REPORT**

Application Number EP 01 30 1433

Catecon	Citation of document with in	Relevant	CLASSIFICATION OF THE		
Category	of relevant pass		to claim	APPLICATION (Int.CL7)	
X	DE 40 05 729 A (KAB 29 August 1991 (199 * the whole documen		1,5,10	C03B37/012	
X	EP 0 698 582 A (SUM 28 February 1996 (1 * page 10, line 30	1,5,10			
X	PATENT ABSTRACTS OF vol. 6, no. 177, 11 September 1982 ( & JP 57 092536 A (DA CO LTD), 9 June 1983 * abstract *	1982-09-11) AINICHI NIPPON CABLES	1,5,10		
A	PATENT ABSTRACTS OF vol. 10, no. 321, 31 October 1986 (198 & JP 61 132535 A (FU LTD), 20 June 1986 ( * abstract *	36-10-31) JRUKAWA ELECTRIC CO	1,5,10	TECHNICAL FIELDS SEARCHED (Int.Cl.7)	
	DATABASE WPI Section Ch, Week 197 Derwent Publications Class F01, AN 1976— XP002178363 -& JP 51 081143 A (SCO LTD), 15 July 197 * abstract; figures	E Ltd., London, GB; 55845x SUMITOMO ELECTRIC IND 76 (1976-07-15)	1,5,10	СОЗВ	
	PATENT ABSTRACTS OF vol. 13, no. 308, 14 July 1989 (1989-0 & JP 01 096038 A (SE 14 April 1989 (1989- * abstract *	17-14) IKO EPSON CORP),	1,5,10		
	The present search report has be	en drawn up for all claims	Ì		
	Place of search	Data of completion of the search		Examiner	
THE HAGUE		25 September 2001	)1 Stroud, J		
X : partic Y : partic docur A : techn	NTEGORY OF CITED DOCUMENTS cutarly relevant if taken alone cutarly relevant if combined with another nent of the same category obligical background written disclosure	L: document cited for	underlying the in iment, but public the application other reasons	nvention shed on, or	

FPO FORM 1603 03.82 (PO4C01)



## **EUROPEAN SEARCH REPORT**

Application Number EP 01 30 1433

Citation of document with in of relevant pass ATENT ABSTRACTS OF ol. 12, no. 410, 8 October 1988 (1984) JP 63 147837 A (50) June 1988 (1988-abstract *  S 4 820 322 A (BAU) April 1989 (1989) figures 3-8 *	sages JAPAN 988-10-28) SEIKO EPSON -06-20) JMGART J W	i CORP),		.5,10	CLASSIFICATION  APPLICATION	
ol. 12, no. 410, 8 October 1988 (19 JP 63 147837 A (5 0 June 1988 (1988- abstract * S 4 820 322 A (BAU 1 April 1989 (1989	988-10-28) SEIKO EPSON -06-20)  JMGART J W					
l April 1989 (1989		ET AL)		,5,10		
			1			
					TECHNICAL F SEARCHED	TELDS (Int.Cl.7)
he present search report has	been drawn up fo	ra⊭ claims				
ace of search				Ī	Examiner	
GORY OF CITED DOCUMENTS trly relevant if taken elone trly relevant if combined with anot nt of the same category		T : theory or E : carrier pr after the D : document L : document	principle und stent docume liling date at cited in the t cited for off	derlying the in ent, but publis application her reasons	vention hed on, or	
	GORY OF CITED DOCUMENTS  If you relevant if taken elone try relevant if combined with anot	Dete of search  Dete of Search  Dete of Search  Dete of Dete of Search  Dete o	IE HAGUE  GORY OF CITED DOCUMENTS  Try relevant if taken alone try relevant if taken alone try relevant if townblind with another to the same category glocal background tilen disclosure  3: member  25 September  Try theory or E of ourner L documen L documen L documen L documen L documen L member	Date of completion of the search  IE HAGUE  25 September 2001  T: theory or principle under the same after the filing date of occurrent cited for oil plackground to the same category gloat background  8: member of the same  8: member of the same	Date of completion of the search  IE HAGUE  25 September 2001 Stro  GORY OF CITED DOCUMENTS  To theory or principle underlying the interpretable to the same patent document, but publis after the filing date  Document cited in the application to the same category gloat background  It theory or principle underlying the interpretable to comment of the same patent document but publis after the filing date  Document cited in the application to other reasons gloat background  Experiment cited for other reasons are member of the same patent family.	Date of completion of the search  IE HAGUE  25 September 2001 Stroud, J  GORY OF CITED DOCUMENTS  T: theory or principle underlying the invention  E: certifer petient document, but published on, or after the filing date  D: document cited in the application to the same category glocal background  E: document cited in the application L: document cited or other reasons  E: document cited or other reasons  E: document cited or other reasons  E: member of the same patent family, corresponding

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EPC FORM 1803 03.82 (P04001)

#### EP 1 129 999 A3

#### ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO.

EP 01 30 1433

This arrivex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

25-09-2001

DE 69513344 D1 23-12-1999 DE 69513344 T2 20-04-2000 EP 0698582 A2 28-02-1996 US 5581647 A 03-12-1996  JP 57092536 A 09-06-1982 NONE  JP 61132535 A 20-06-1986 NONE  JP 51081143 A 15-07-1976 NONE  JP 01096038 A 14-04-1989 NONE  JP 63147837 A 20-06-1988 NONE  US 4820322 A 11-04-1989 AU 579767 B2 08-12-1988 AU 7193387 A 29-10-1987		Patent document cited in search rep		Publication date		Patent fam member(s		Publication date
DE 69513344 D1 23-12-1999 DE 69513344 T2 20-04-2000 EP 0698582 A2 28-02-1996 US 5581647 A 03-12-1996  JP 57092536 A 09-06-1982 NONE  JP 61132535 A 20-06-1986 NONE  JP 51081143 A 15-07-1976 NONE  JP 01096038 A 14-04-1989 NONE  US 4820322 A 11-04-1989 AU 579767 B2 08-12-1988 AU 7193387 A 29-10-1987 CA 1317464 A1 11-05-1993 CN 87103085 A , B 17-02-1988 DE 3769002 D1 08-05-1991 DK 211787 A 29-10-1987 EP 0244135 A1 04-11-1987 IN 170814 A1 23-05-1992 JP 62260727 A 13-11-1987	DE	4005729	A	29-08-1991	DE	4005729	A1	29-08-1991
JP 61132535 A 20-06-1986 NONE  JP 51081143 A 15-07-1976 NONE  JP 01096038 A 14-04-1989 NONE  JP 63147837 A 20-06-1988 NONE  US 4820322 A 11-04-1989 AU 579767 B2 08-12-1988 AU 7193387 A 29-10-1987 CA 1317464 A1 11-05-1993 CN 87103085 A ,B 17-02-1988 DE 3769002 D1 08-05-1991 DK 211787 A 29-10-1987 EP 0244135 A1 04-11-1987 IN 170814 A1 23-05-1992 JP 62260727 A 13-11-1987	EP	0698582	A	28-02-1996	DE DE EP	69513344 69513344 0698582	D1 T2 A2	05-03-1996 23-12-1999 20-04-2000 28-02-1996 03-12-1996
JP 51081143 A 15-07-1976 NONE  JP 01096038 A 14-04-1989 NONE  JP 63147837 A 20-06-1988 NONE  US 4820322 A 11-04-1989 AU 579767 B2 08-12-1988 AU 7193387 A 29-10-1987 CA 1317464 A1 11-05-1993 CN 87103085 A ,B 17-02-1988 DE 3769002 D1 08-05-1991 DK 211787 A 29-10-1987 EP 0244135 A1 04-11-1987 IN 170814 A1 23-05-1992 JP 62260727 A 13-11-1987	JP	57092536	Α	09-06-1982	NONE	·		
JP 01096038 A 14-04-1989 NONE  JP 63147837 A 20-06-1988 NONE  US 4820322 A 11-04-1989 AU 579767 B2 08-12-1988	JP	61132535	Α	20-06-1986	NONE			• — — —,,,
JP 63147837 A 20-06-1988 NONE  US 4820322 A 11-04-1989 AU 579767 B2 08-12-1988	JP	51081143	A	15-07-1976	NONE			
US 4820322 A 11-04-1989 AU 579767 B2 08-12-1988 AU 7193387 A 29-10-1987 CA 1317464 A1 11-05-1993 CN 87103085 A ,B 17-02-1988 DE 3769002 D1 08-05-1991 DK 211787 A 29-10-1987 EP 0244135 A1 04-11-1987 IN 170814 A1 23-05-1992 JP 62260727 A 13-11-1987	JP	01096038	A	14-04-1989	NONE			
AU 7193387 A 29-10-1987 CA 1317464 A1 11-05-1993 CN 87103085 A ,B 17-02-1988 DE 3769002 D1 08-05-1991 DK 211787 A 29-10-1987 EP 0244135 A1 04-11-1987 IN 170814 A1 23-05-1992 JP 62260727 A 13-11-1987	JP	63147837	Α	20-06-1988	NONE	_		• • • • • • • • • • • • • • • • • • •
	us 	4820322	Α	11-04-1989	AU CA CN DE DK EP IN JP	7193387 1317464 87103085 3769002 211787 0244135 170814 62260727	A A1 A ,B D1 A A1 A1 A	11-05-1993 17-02-1988 08-05-1991 29-10-1987 04-11-1987 23-05-1992 13-11-1987

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

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